



What is the Impact of Severe Hypogammaglobulinemia on the Risk of Infections within the First Year after Solid Organ Transplantation? A Meta-analysis.

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BACKGROUND

Hypogammaglobulinemia has been described after solid organ transplantation and has been associated with increased risk of infections.

METHODS

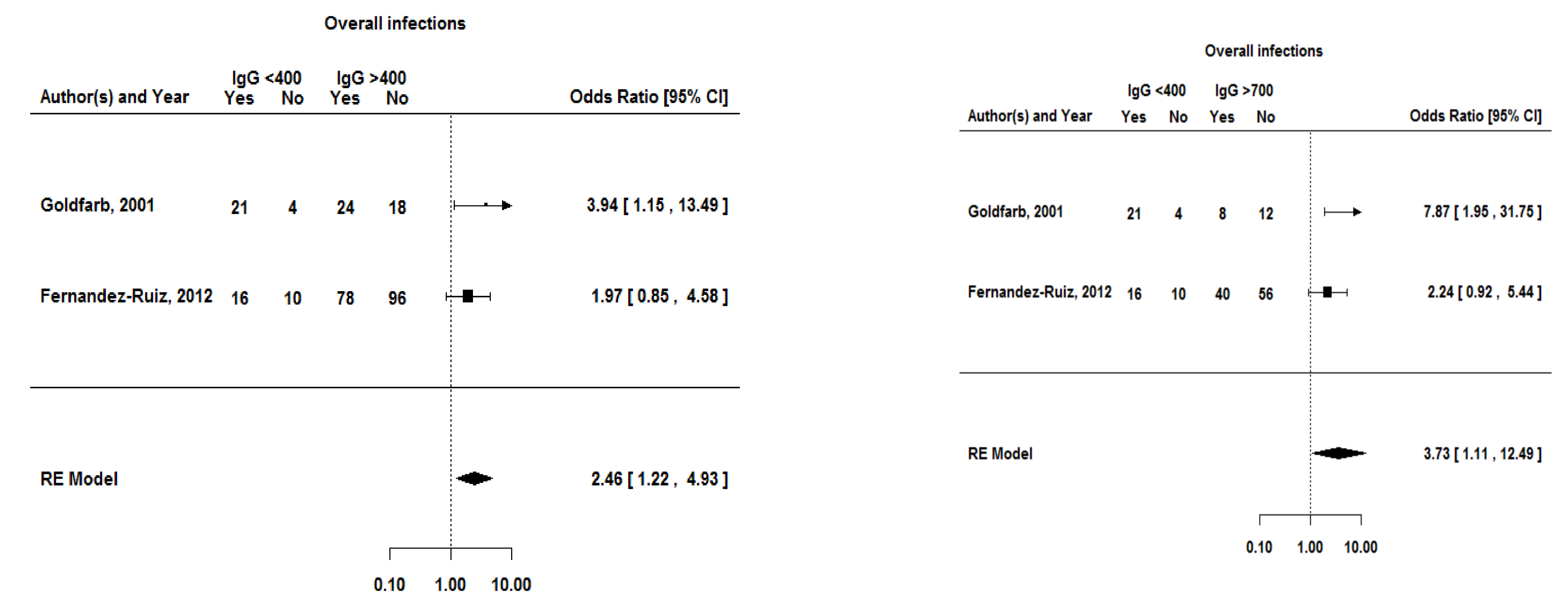
- All studies that evaluated severe HGG and post-transplant infections were included.
- The data was pooled using the DerSimonian and Laird random-effects model. I^2 was used to assess statistical heterogeneity. When comparing two groups, binary outcomes results were expressed as odds ratio, and continuous outcomes results as standardized mean difference.
- The aim of the study was to determine the rate of severe HGG (IgG<400mg/dl) and its impact on different infections during the first year post-transplantation.

RESULTS

- Within first post-transplant year the overall rate of HGG (IgG<700mg/dl) (1482 patients, 16 studies) was **45%** (95%CI:0.34-0.55) and severe HGG (669 patients, 8 studies) was **15%** (0.08-0.22).

Severity of hypogammaglobulinemia	Type of allograft	Number of patients (number of articles)	Rate (%)	95%CI	Test of heterogeneity	
					Q statistics	p-value
<400	overall	669 (8)	15	0.08-0.22	50.15	<0.0001
	heart	203 (2)	21	0.001-0.43	16.14	0.0001
	kidney	251 (2)	8	0.01-0.16	2.83	0.09
	lung	163 (3)	22	0.08-0.36	11.02	0.004

The odds of all infections for patients with severe HGG was **2.46** (95%CI:1.22-4.93;p=0.01) times higher than the odds of infections for patients with IgG>400mg/dl, and **3.73** (1.11-12.49;p=0.03) times higher than the odds of infections for patients with IgG>700mg/dl.



The impact of severe HGG on different infections, rejection and mortality rates during the first post-transplant year

IgG<400mg/dl vs. IgG>400mg/dl	No. of studies (patients)	OR(95%CI)	p-value	I^2
Respiratory infections	2(257)	4.83(1.66-14.05)	0.004	0%
CMV infections	4(435)	2.40(1.16-4.97)	0.02	26.66%
Aspergillus infections	2(124)	8.19(2.38-28.21)	0.0009	17.02%
Other fungal infections	2(124)	3.69(1.11-12.33)	0.03	0%
Rejection	2(257)	1.43(0.52-3.92)	0.48	0%
1-year mortality	2(124)	21.91(2.49-192.55)	0.005	0%

CONCLUSIONS

- Severe HGG during the first year after solid organ transplantation significantly increases the risk of CMV, fungal and respiratory infections, and the one-year mortality, with no impact on rejection rates.
- Monitoring IgG levels after solid organ transplantation might identify patients at high risk for infections.